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09/559,073	04/27/2000	Kazuyuki Murakami	0059-1219-0X	2052

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EXAMINER

VANOY, TIMOTHY C

ART UNIT

PAPER NUMBER

1754

9

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Please find below and/or attached an Office communication concerning this application or proceeding.

MF=9

Office Action Summary

Application No. 09-559,073	Applicant(s) MURAKAMI ET AL.		
Examiner VANOY	Group Art Unit 1754		

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE THREE MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☒ Responsive to communication(s) filed on Nov 8, 2001
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 17-43 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 17-43 is/are rejected.
- ☒ Claim(s) 31 is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____.
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☐ Interview Summary, PTO-413
- ☐ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other _____

Office Action Summary

DETAILED ACTION

Claim Objections

- a) In claim 31 ln. 5, "macropores" is misspelled.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 34, 36 and 37 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

- a) Table 1 set forth on pg. 48 in the Applicants' specification does not support the "or less" component of the ranges set forth claims 34 and 36.
- b) Table 1 set forth on pg. 48 in the Applicants' specification does not support the "7.0" component of the range set forth in claim 37.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The person "having ordinary skill in the art" has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The references of record in this application reasonably reflect this level of skill.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 17-25, 29-31, 34-38 and 42-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 06-216,446 in view of JP 4-175,277 A ("JP-277").

The English abstract of JP 06-216,446 discloses what appears to be at least an obvious variation of the same carbonaceous material (and method for making the same) and the same electric double layer capacitor (and method for making the same).

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The carbonaceous material was prepared by:

- (i) curing a phenolic resin;
- (ii) grinding the cured product;
- (iii) carbonizing the ground, cured product via thermal treatment in a nitrogen atmosphere, and
- (iv) activating the carbonized product in an atmosphere of carbon dioxide to (evidently) obtain the carbonaceous material (please see the English abstract of JP 06-216,446, under the first two sentences under the "Constitution" paragraph header).

This activated carbonaceous material is mixed with other ingredients to include the binder of Applicants' claim 38 and worked up to (evidently) form the capacitor (please see the English abstract of JP 06-216,446, the last three sentences under the "Constitution" paragraph header).

The difference between the Applicants' claims and JP 06-216,446 is that Applicants' claim 25 step (1) and claim 38 step (1) calls for curing the resin in the presence of a *volatile component* (wherein pg. 16 lns. 11-21 in the Applicants' specification defines *volatile component* as embracing compounds to include glycols, polyols such as ethylene glycol, etc.).

The English abstract of JP 4-175,277 A describes a method for curing phenolic resin (evidently, the same phenolic resin of JP 06-216,446 and also of Applicants' claims 29 and 42) in a process for making an electric double layer capacitor (please compare to the "electrostatic capacitance" mentioned in the English abstract of 06-216,446 and also to the "electric double layer capacitor" of Applicants' claims 31-43)

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wherein a "glycerol" or an "oxyalkylene compound" (the same polyethylene glycol embraced in the scope of compounds mentioned on pg. 16 lns. 11-21 in the Applicants' specification is *also* set forth in Tables 1 and 2 on pg. 14 in the text of JP 4-175,277 A, i. e. the "PEG") is added to the phenolic resin prior to the carbonization of the resin. The "use/advantage" section of the English abstract of JP 6-175,277 A sets forth that the product carbon composition has a high surface area (Table 3 on pg. 16 mentions a surface area as high as 1200 m²/g, please compare this to the surface area of 1,000 to 2,500 m²/g set forth in (at least) Applicants' claim 17), liquid permeable pores (Table 3 mentions a pore volume as high as 0.56 g/cm³, please compare this to a pore volume of 0.5 to 1.5 cm³/g set forth in at least Applicants' claim 17) and is suitable for stably functioning capacitors.

It would have been obvious to one of ordinary skill in the art at the time the invention was made *to modify* the process of JP 06-216,446 A *by including* the "glycerols" or "oxyalkylene compounds" (i. e. "PEG", etc.) mentioned in the English abstract of JP 04-175,277 *with the* phenolic resin at a point in the process before the carbonization step, in the manner required by at least Applicants' claims 25 and 38, *because* of the expected advantage of obtaining a surface area and porosity of the carbon product that renders it suitable for use in electric double layer capacitors (please see the "use/advantage" section in the abstract of JP 4-175,277 A), *in the same field of endeavor as in the Applicants' claims*.

The surface area limitations of Applicants' claims 17, 21, 22, 24, 30, 31 and 43 are noted, but the composition manufactured according to the above process resulting

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from the modification of JP 6-216,446 according to JP 4-175,277 is expected to exhibit surface areas that are indistinct, since the process for preparing the composition is indistinct. For example, Table 3 on pg. 16 in JP 4-175,277 mentions a surface area as high as 1200 m²/g, please compare this to the surface area of 1,000 to 2,500 m²/g set forth in (at least) Applicants' claim 17.

The porosity limitations of Applicants' claims 17-20, 23, 30 and 43 are noted, but the composition manufactured according to the above process resulting from the modification of JP 6-216,446 according to JP 4-175,277 is expected to exhibit porosities that are indistinct, since the process for preparing the composition is indistinct. For example, Table 3 on pg. 16 in JP 4-175,277 mentions porosities as high as 0.56 g/cm³, please compare this to the porosity of 0.5 to 1.5 cm³/g set forth in (at least) Applicants' claim 17.

The capacitance limitations of Applicants' claims 34 and 35 are noted, but the composition manufactured according to the above process resulting from the modification of JP 6-216,446 according to JP 4-175,277 is expected to exhibit capacitances that are indistinct, since the process for preparing the composition is indistinct. For example, Table 3 on pg. 16 in JP 4-175,277 mentions a capacitance as low as 48 F/g of (evidently) either the carbon intermediate of the capacitor product, please compare this to the capacitance of 4.32 F for the capacitor set forth in (at least) Applicants' claim 34.

The internal resistance limitations of Applicants' claims 36 and 37 are noted, but the composition manufactured according to the above process resulting from the

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modification of JP 6-216,446 according to JP 4-175,277 is expected to exhibit internal resistances that are indistinct, since the process for preparing the composition is indistinct. For example, Table 3 on pg. 16 in JP 4-175,277 mentions an internal resistance as high as 2.1 ohms, please compare this to the resistance of less than 12 ohms set forth in (at least) Applicants' claim 36.

The difference between the Applicants' claims and the English abstract of JP 06-216,446 is that (at least) Applicants' claims 25 and 38 describe temperature; viscosity and mass reduction limitations used in the process for making the carbonaceous material and capacitor, however it is submitted that these differences would have been obvious to one of ordinary skill in the art at the time the invention was made *because* it is submitted to be within the skill level of the person having ordinary skill in the art *to readily determine* which process parameters (i. e. the claimed temperature limitations, etc.) should be used from the general conditions that JP 06-216,446 and JP 4-175,277 A use to make their carbonaceous material and capacitor *and to also describe* the chemical and physical properties of what appears to be the same carbonaceous material and capacitor.

Claims 17-31 and 34-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over the English abstract of JP 06-216,446 in view of JP 4-175,277 A and further in view of JP 5-243,092 A and JP 2-297,915 A.

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Claims 17-25, 29-31, 34-38 and 42-43 are rejected as being obvious from the English abstract of JP 06-216,446 in view of JP 4-175,277 A, as described in the previous rejection.

The differences between the Applicants' claims and JP 06-216,446 is that Applicants' claims 26-28 and 39-41 call for the use of curing agents and curing accelerators to be used during the curing of the resin.

The English abstract of JP 2-297,915 A is drawn to the same art of making electric double layer capacitors and discloses the use of a curing agent during the curing of the phenol resin. The English abstract of JP 5-243,092 A is also drawn to the same art of making electrolytic capacitors and discloses the use of salicylic acid as an agent which shortens the aging time of components used in the manufacture of electrolytic capacitors.

It would have been obvious to one of ordinary skill in the art at the time the invention was made *to modify* the process of making the carbonaceous material obvious from the English abstract of JP 06-216,446 in view of JP 4-175,277 A *by including* the curing agents and/or curing accelerators disclosed in the English abstracts of JP 2-297,915 A and JP 5-243,092 A in the claimed amounts during the curing step, in the manner called for in at least Applicants' claims 26-28 and 39-41, *because* the disclosures set forth in the English abstracts of JP 2-297,915 A and JP 5-243,092 A is evidence that it is conventional and the status quo to use such curing agents and curing accelerators in the manufacture of capacitors. It is obvious to do what is routinely done in the art.

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Claims 17-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over the English abstract of JP 06-216,446 in view of JP 4-175,277 A and further in view of JP 2-297,915 A and JP 5-243,092 A, as applied to claims 17-31 and 34-43 above, and further in view of U. S. Pat. 5,754,393 to Hiratsuka et al.

The difference between the Applicants' claims and JP 06-216,446; JP 4-175,277 A; JP 2-297,915 A and JP 5-243,092 A is that Applicants' claims 32 and 33 call for the presence of an organic electrolytic solution comprising a solvent, such as sulfolane, sulfolane derivatives, etc., and a quaternary onium salt in the capacitor.

Col. 2 ln. 8 to col. 3 ln. 10 in U. S. Pat. 5,754,393 discloses a capacitor containing an electrolyte which comprises a solvent (such as sulfolane and its derivatives: please also see col. 2 lns. 35-34) and a quaternary onium salt (please see col. 2 lns. 62 to col. 3 ln. 10). From the description of the prior art set forth in col. 1 ln. 9 et seq., it appears conventional to use such electrolytic salts and solvents in the art of manufacturing capacitors, and the particular solvents and salts set forth in the Applicants' claims appear to also be conventional in the art (please note col. 1 lns. 35-42 and col. 2 ln. 63 to col. 3 ln. 10).

It would have been obvious to one of ordinary skill in the art at the time the invention was made *to recite* that the electric double layer capacitor obvious from the English abstract of JP 6-216,446 in view of JP 4-175,277 A also contains an electrolyte (to include the solvent and electrolytic salts of Applicants' claims 32 and 33) *because* the description of the prior art set forth in col. 1 ln. 9 et seq. in U. S. Pat. 5,754,393 is

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evidence that the presence of such electrolytes in electric double layer capacitors is conventional and the state of the art for the taught advantage of increasing the working voltage, etc., as set forth in at least col. 1 Ins. 16-19 in U. S. Pat. 5,754,393.

Response to Arguments

The Applicants' arguments submitted in their Amendment date stamped Nov. 8, 2001, which has been filed as paper no. 7, have been fully considered but they are moot in view of the new grounds of rejection.

Response to 132 Declaration

The 132 Declaration signed by Mr. Yasuo Shinozaki on Sept. 19, 2001 has been considered. Note that the rejections based on U. S. Pat. 6,038,123 have been withdrawn.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy C. Vanoy whose telephone number is 703-308-2540. The examiner can normally be reached on 8 hr. days.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffen can be reached on 703-308-1164. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Timothy Vanoy/tv
January 11, 2002


Timothy Vanoy
Patent Examiner

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